A–1278

Total Pages : 3 **Roll No. .....**

MIT (CS)-104/CEGCS-04

(MCA/MSCCS/CEGCS)

Information System

Examination February, 2026

Time : 2:00 Hrs. Max. Marks : 70

Note* :–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

Long Answer Type Questions (2×19=38)

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Describe the OSI Reference Model in detail. Explain the functions and services of each of the seven layers.

2. Discuss the TCP/IP architecture in detail. Explain all layers of TCP/IP, their functions and compare TCP/IP architecture with the OSI model.

3. What is IP Address ? What are the classes of an IP address ? Explain with an example.

4. Define Subnet. Explain the Types of Subnetting.

5. Define cryptography. Explain in detail cryptographic algorithms including symmetric, asymmetric, and hash algorithms. Discuss DES, 3DES, AES and RSA.

Section–B

Short Answer Type Questions (4×8=32)

Note **:–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What is penetration testing ? Describe types of pentesting (black-box, gray-box, white-box).

2. Explain the following terms :

   (i) Dictionary Attack

   (ii) Brute-force Attacks

   (iii) Hybrid Attack

   (iv) Man-in-the-middle attack

3. Explain the terms Confidentiality, Integrity, Availability, and non-repudiation.

4. What are the various types of hackers ? Explain each of them briefly.

5. Describe major Internet protocols :

   SMTP, POP3, IMAP, FTP, SSH, and SSL.

6. Explain the Domain Name System (DNS) in detail.

7. Describe the structure of an IP datagram and explain each field.

8. What are the security standards and best practices for web application security ?

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